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H. WALTER LACK[1]

The discovery, naming and typification of *Euphorbia pulcherrima (Euphorbiaceae)*

Abstract

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The poinsettia *(Euphorbia pulcherrima)* was first collected by members of the Sessé & Moçiño expedition in Mexico, subsequently also by Humboldt & Bonpland and Schiede & Deppe. Living material sent by Karwinski to the Royal Botanic Garden in Schöneberg formed the basis of the validation of the name *E. pulcherrima* which is here typified. The other names related to this taxon are also typified. It is shown that *E. poinsettii* Raf. is a validly published alternative name, which predates *E. pulcherrima,* making conservation of the latter well established name necessary.

Additional key words: poinsettia, Sessé & Moçiño expedition, Humboldt & Bonpland expedition, Botanic Garden Berlin, nomenclature, Mesoamerica

1. Introduction

The poinsettia (*Euphorbia pulcherrima* Klotzsch), a native of Mesoamerica found wild from Sinaloa, W Mexico, to Guatemala (Steinmann 2002), is an extremely popular ornamental, cultivated and traded today in large quantities on all five continents. This paper deals only with the first records by Europeans, the first collections and the subsequent naming of a plant which has become almost synonymous with Christmas in many parts of the world, as well as with the typification of its name. On the basis of a significantly larger body of evidence than previously available, earlier findings (notably Dressler 1962) are corroborated and additional data presented. Since the Royal Botanic Garden in Berlin and taxonomists working there played a major role in this story, it seems appropriate to publish this contribution in Willdenowia.

2. Aztec herbals

Aztec herbals are illuminated manuscripts describing, among others, the medicinal properties of plants of Mesoamerica and their uses, often superstitious. Of these the Florentine Codex (Biblioteca Medicea Laurentiana, Florence) and the Codex Cruz-Badianus (Instituto Nacional de Antropología e Historia, Mexico City; previously Biblioteca Vaticana, Rome) are particularly important. They were prepared after the conquest of Mexico by Cortés and have been written in Spanish with plant names in Nahuatl, but do not contain illustrations true to nature, and none of the images can be securely interpreted as showing *Euphorbia pulcherrima*. The so-called Aztec Herbal (Royal Library, Windsor), a copy of the Codex Cruz-Badianus recently analysed in an exemplary fashion (Clayton & al. 2010), was also shown to containing no image of the poinsettia.

3. Hernández

The life and writings of Francisco Hernández (1515–87), physician in ordinary of Philip II, king of Spain, have recently been analysed in remarkable detail (Varey & al. 2000; Varey 2002). From 1571 to 1577 Hernández, pro-

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tomédico for the New World, had been to Nueva España, i.e. Mesoamerica, studied many facets of natural history and brought back rich manuscript material, which is kept today at the Biblioteca Nacional (MS 22.436–22.439) and the Ministerio de Hacienda (MSS 931, 932), both in Madrid. Several scholars subsequently consulted this material or copies thereof and used it as basis for their works and publications. Of the latter two are particular relevant: (1) the Rome edition of Hernández's writings entitled "Rerum medicarum Novae Hispaniae thesaurus" (Hernandez 1651), edited by Nardo Antonio Recchi with commentaries by members of the Accademia dei Lincei and (2) the Madrid edition of Hernández's writings entitled "Francisci Hernandi Opera cum edita, tum inedita, ad autographi fidem et integritatem expressa" (Hernandez 1790), edited by Casimiro Gómez Ortega (1740–1818). Both were published in Latin, only the first contained simple woodcuts of some of the plants and animals described. In the years 1942–46 the Instituto de Biología de México published a Spanish translation of the Madrid edition with rich commentaries and modern determinations (Hernández 1942–46), the so-called Mexico edition, which also includes the illustrations taken from the Rome edition.

The entry to Liber VI, caput CXXXVII of the Madrid edition reads "De Cuetlaxochitl. Arbor est mediocris, folia magna ferens tricuspidia, et alterutra parte sinuosa, flores rubros praegrandes, ceteris arborum foliis, si colorem demas, persimiles. Folia augent nutricum lac, etiam senescentium, sive ipsa pro olere cruda coctave edantur, seu lac, quo affluunt, libeat lambendum exhibere. Nascitur quibusque regionibus, sive frigidae sint, sive fervidae, hortosque, et compluvia Indorum laeta, ac visu grata exornat" (Hernandez 1790, 2: 189). This text was translated into Spanish as "Es un árbol mediano con hojas de tres puntas y sinuosas por uno y otro lado, y flores rojas muy grandes, sumamente parecidas, exceptuando el color, a las hojas mismas del árbol. Las hojas aumentan la leche a las nodrizas, aun a las ancianas, sea que las coman crudas o cocidas a modo de hortaliza, o que laman el latex que mana de ellas. Nace en cualesquiera regiones, sean frías o ardientes, y adorna alegre y hermoso los huertos y patios de los indios" (Hernández 1942–46: 958). The anonymous commentator in Hernández (1942–46) correlates this description without any doubt to the "famous 'flor de nochebuena' (*Euphorbia* [*Poinsettia*] *pulcherrima* Willd.)", adding that it is today as popular among the native population as previously and that the Nahuatl name "cuitlaxochitl" has been given in a dendrological work (Standley 1923) to this very species, an identification corroborated much later (Martínez 1979).

Again on the basis of this Nahuatl name the anonymous commentator (Hernández 1942–46) makes one further correlation. He interprets the following statement in the Florentine Codex as referring to *Euphorbia pulcherrima:* "Hay una flor que se llama cuetlaxuchitl, con hojas de un árbol muy coloradas. Hay también entre las mugeres una enfermedad que se les causa en la clítoris mugeril, que también la llaman cuetlaxuchitl. Decían los supersticiosos antiguos, que esta enfermedad se usaba en las mugeres por haber pasado sobre esta flor arriba dicha, o por haberla olido, o por haberse sentado sobre ella; y por esto avisaban a sus hijas que se guardasen de olerla, o de sentarse, o de pasar sobre ella" [There is a flower named cuetlaxuhitl, with very colourful tree leaves. Among women, there exists a disease of the female clitoris, which is also called cuetlaxochitl. The superstitious elders said that this disease occurred with women that had stepped over the above-said flower or had smelled it or had sat upon it. For this reason they advised their daughters neither to smell, nor to sit or step over it].

4. Sessé & Mociño

Very rightly it had been stated "The Royal Botanical Expedition to New Spain, known to many botanists as the Sessé & Mociño Expedition, was an elaborate, well-planned, and for some years well-supported venture ... Had it not been for the circumstances that disrupted it after 1800, it may be supposed that the published accounts of its botanical work would have become classics, contemporary with or preceding the work of Humboldt and Bonpland. ... The botanists of the Expedition were competent ... they collected thousands of specimens and kept copious notes, they supervised the production of many hundreds of good illustrations ..." (McVaugh 2000; for more complete background information see San Pío Aladrén & Puig-Samper 2000; Mociño & Sessé 2010). And it is among these materials that the oldest specimens and the oldest illustration of *Euphorbia pulcherrima* are to be found, which are to be associated with the leaders of the undertaking, Martín de Sessé y Lacasta (1751–1808) and José Mariano Mociño (1757–1820).

At least four specimens survive: three in the herbarium of the Real Jardín Botánico Madrid, i.e. MA 602274–602276, and one in the Natural History Museum London. MA 602274 is annotated "C. 11–3. *Euphorbia fastuosa*" in the hand of Jaime Senseve (–1805), MA 602276 "977. 11,3 *Euphorbia fastuosa*" in an unknown hand (Blanco & al. 2010), and the London specimen "*Euphorbia fastuosa* NE [Nueva España] Mexico Pavon [in error]", again in unknown hand. Considering the wide distribution of duplicate material of the Sessé & Moçiño expedition, it is likely that many more specimens of *E. pulcherrima,* annotated *E. fastuosa,* can be traced. No locality information is given on the labels of the four specimens, but considering both the travel routes of the expedition (McVaugh 1969) and the distribution of the species (Steinmann 2002), it is certain that the material was collected in central Mexico. On the basis of the Sessé & Moçiño's posthumously published "Plantae Nouae Hispaniae" (Sesse & Moçiño 1887–91, fide Nelson Sutherland 1997; McVaugh 2000) the information "in Xochistlam aliisque temperatis Novae Hispaniae locis.

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Fig. 1. *Euphorbia pulcherrima* – undated drawing by A. Echeverría y Godoy or J. de Dios Vicente de la Cerda, Torner collection 0658. – From Martínez (2010).

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Fig. 2. *Euphorbia pulcherrima* – A–B: folder (p.p.) with label (A) and specimen (B) collected by A. von Humboldt and A. Bonpland in Mexico, B-W 9257, Botanic Garden and Botanical Museum Berlin-Dahlem, herbarium.

Floret Decembri, unde Flores Nativitatis ab Indigenis adpellantur" has been subsequently added to MA 602274 and MA 602276 (McVaugh 2000). The three herbarium sheets have been identified by P. C. Standley (Blanco & al. 2010) and their names confirmed by McVaugh (2000) and the present author. In addition, an illustration of *E. pulcherrima* (Fig. 1) was prepared by one of the illustrators accompanying the expedition, either by Atanasio Echeverría y Godoy (1773–1820) or by Juan de Dios Vicente de la Cerda (1772–) (Zamudio 2010). It is kept at the Hunt Institute for Botanical Documentation in Pittsburgh (shelf mark Colección Torner 0658), annotated in pencil "11" and in ink "*Euphorvia* [corrected to *Euphorbia*] *fastuosa*. N.", the former standing for Linnaeus's class XI Dodecandria. This image was recently published, more than two centuries after it had been prepared (Martínez 2010). In contrast, the validation of the name *E. fastuosa* had to wait only for a century; however, when the first edition of the "Plantae Nouae [sic] Hispaniae" (Sessé & Moçiño 1887–91) finally appeared, the name based on an old manuscript description was a later synonym of *E. poinsetti* and *E. pulcherrima* (see below).

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5. Humboldt & Bonpland

On the basis of an order from Aranjuez dated 8 March 1803, José de Iturrigaray (1742–1815), viceroy of Nueva España, ordered Moçiño and Sessé to return to Spain (Godínez 2010). The former embarked on 23 March1803 (Butanda & Godínez 2010), the latter probably somewhat later (Godínez 2010). Alexander Freiherr von Humboldt (1769–1859), Aimé Bonpland (1773–1858) and Carlos de Montúfar (1780–1816) arrived in Acapulco on 22 March 1803 (Faak 1990) and sent their first letter to the viceroy on 28 March 1803 (Moheit 1993). There is no evidence that they ever met Sessé in Mexico although Humboldt had heard about the expedition at an early date and had written on 21 February 1801 from Cuba to Carl Ludwig Willdenow (1765–1812), his former mentor in Berlin, "Sesse, ein sehr guter Botanist, hat 7 Jahre lang ganz Mexiko und Californien bereist ..." [Sesse, a very good botanist, has travelled for seven years in the whole of Mexico and California ...]. In the same letter Humboldt had also mentioned the superb quality of Echeverría's illustrations. Humboldt, Bonpland and Montúfar stayed only for less than a year in Mexico, embarking from Veracruz for Cuba on 7 March 1804 (Faak 1990; general background of this expedition, e.g. Lack 2009).

Although Humboldt's diary mentions the genus *Euphorbia* for Mexico only once and in passing (Faak 1990), *E. pulcherrima* was definitely collected. Two specimens survive in the Willdenow herbarium in the Botanical Museum Berlin (B), i.e. B-W 9257 (Fig. 2B) and 9258. Neither of them is annotated by Humboldt or Bonpland, B-W 9257 has only the note "Humboldt W", B-W 9258 only "W" in the right hand lower corner, both in the hand of Diederich Friedrich Carl von Schlechtendal (1767–1842). In addition, B-W 9258 carries a small label with the inscription *"E. coccinea"* in Willdenow's microscopic hand. B-W 9257 has been placed in a blue herbarium folder with a label in Willdenow's hand reading "Polyandria Trigynia *E. diversifolia* frutices inermis. Foliis obovato-oblongis attenuatis pedanti formibus flacidis pedunculatis solitariis axillaribus. Habitat in Mexici aridis" (Fig. 2A). B-W 9258 is kept in a blue herbarium folder, annotated in an unknown hand *"E. coccinea"*. Considering the realities of transport from Mexico to Central Europe, it is likely that the material arrived in 1804 at the earliest. By that time the account of the Polyandria Trigynia in the second volume of the forth edition of Linnaeus's Species Plantarum by Willdenow had already been published. Since Willdenow was unable to produce a supplement to his opus magnum, his description of *E. diversifolia* was left unpublished in the herbarium.

When Carl Sigismund Kunth (1788–1850) studied the *Euphorbiaceae* collected by Humboldt and Bonpland for the second volume of his monumental "Nova genera et species plantarum" (Kunth 1817–18) in Paris he had at hand (1) the specimens Humboldt had deposited in the Muséum Royal d'Histoire Naturelle soon after his return from the Americas, (2) those Humboldt had retained and (3) the Journal Botanique containing Bonpland's and Humboldt's field notes (Lack 2004a, b), but not the material sent years earlier to Willdenow. Since neither the Paris sets nor the Journal Botanique contained specimens or a description of *Euphorbia pulcherrima* and no loan of the unicates kept in Berlin was made, this species was not treated by Kunth.

6. Schiede & Deppe

Mexico became independent in 1821 and this political change opened the country to travellers of any nationality (Stresemann 1954). Christian Julius Wilhelm Schiede (1798–1838) and Ferdinand Deppe (1798–1836), both collectors of natural history specimens, notably birds for the Natural History Museum in Berlin, were two of them (Lack 1984) and they definitely collected specimens of *Euphorbia pulcherrima* from localities given as "in Jalapae" [Xalapa] and "Papantla", at the former place in November 1828. Upon arrival in the Royal Botanic Garden in Schöneberg near Berlin, this material was studied by the two curators at the time, Diederich Franz Leonhard Schlechtendal (1794–1866) and Adelbert von Chamisso (1781–1838). They compared it with B-W 9257, 9258 and 9259 (then still extant, see below) and gave a brief description, but for unknown reason refrained from naming the specimens (Schlechtendal & Chamisso 1831). In short, another chance was missed. This material must have been lost in Berlin in 1943, but duplicate specimens have survived, e.g. in the Natural History Museums in London and Vienna. They have been studied by the author and found indeed to belong to the poinsettia. Significantly the BM specimen is annotated "*Euphorbia* sp. *Fruticosa* in sylvaticis Xalapae Nov. 28. fol. floral. sanguinea". Although neither a collector nor collection number is indicated the note "Ex Museo botanico Berolinensi" makes it clear, that this specimen came from the Schiede & Deppe expedition.

7. Poinsett

The United States were represented in Mexico from 1822 to 1823 by the Special Envoy Joel Roberts Poinsett (1799–1851), who came back to Mexico as Minister serving from 1825 to 1829 (Hruneni 1972). He seems to have been the first to collect living material of *Euphorbia pulcherrima,* which he sent to Philadelphia where it was cultivated in the garden of the Bartram family, a garden still extant today and situated at 54th St and Lindbergh Blvd.

An early record of this introduction is found in a note by the notorious C. S. Rafinesque (1783–1840) published in his Atlantic Journal, stating "The Botanical Garden of Bartram received some years ago from Mr. Poinsett our ambassador in Mexico, a fine new green-house shrub,

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akin to *Euphorbia,* with splendid scarlet blossoms, or rather bracts" (Rafinesque 1833). By that time the species had already spread "in our gardens near Philadelphia and is known in some as the *E. poinseti*" (Rafinesque 1833). However, the taxon was described as *Pleuradena coccinea* Raf. (erroneously listed in IPNI (2011) as "*Pleuradenia coccinea*"), the author mentioning explicitly "bracts scarlet lanceolate acute, flowers subsessile yellow edged with red, gland yellow", but adding his doubts on its taxonomic position in stating "If yet deemed an *Euphorbia* it may be called *E. coccinea* or *E. poinseti* Raf. S. G. [= subgenus] *Pleuradena*" (Rafinesque 1833). This last statement needs a more detailed comment: Rafinesque offers, explicitly forms and accepts two alternative names, i.e. names based on the same type and published simultaneously and in the same work for his *Pleuradena coccinea* Raf. in the genus *Euphorbia:* (1) *Euphorbia coccinea* Raf., non Roth 1821, and (2) *E. poinset[t]i[i]* Raf. It is notable that Merrill (1949) suppressed these two alternative names and did not include them in his standard list of Rafinesque names, probably regarding them as "ill-begotten names now being eliminated by the International Code of Botanical Nomenclature" (Merrill 1949: 31). However, Merrill's statement on the ICBN is incorrect, since alternative names were only banned by the Stockholm Code (Lanjouw & al. 1952) and taking effect only for publications on and after 1 January 1953. This regulation continues to be maintained in the Vienna Code (McNeill & al. 2006, Art. 34.2). Finally two names, *P. coccinea* Raf. and *E. poinsettii,* were available for the spectacular plant from Mexico.

8. Karwinski

Wilhelm Friedrich Freiherr von Karwinski von Karwin (1780–1855) stayed from 1827 to 1832 in Mexico as a mining engineer and is known to have sent living plants (notable cacti) as well as herbarium specimens to Munich (Urban 1907). Living material of two euphorbias collected by Karwinski in Mexico arrived in 1833 in the Royal Botanic Garden in Schöneberg near Berlin and was cultivated in the conservatory (Klotzsch 1834). Both were regarded as new to science by Johann Friedrich Klotzsch (1805–1860), then an assistant at this institution (Klotzsch 1834). One of them was compared with the three specimens B-W 9257, 9258 and 9259 (then still extant; see below) and found to be identical with them. Klotzsch (1834) made use of the manuscript name *Euphorbia pulcherrima* said to have been coined by Willdenow and gave a detailed description published in Allgemeine Gartenzeitung, a garden journal coedited by Friedrich Otto (1773–1856) and Albert Dietrich (1795–1856), the latter subsequently a curator at the Royal Botanic Garden in Schöneberg. No herbarium specimen documenting this introduction has been preserved.

It was Otto, then director of the Royal School of Gardeners in Berlin, who had contributed practical information on the cultivation of *Euphorbia pulcherrima* and seems to have been the first to realise the commercial potential of the new acquisition (Klotzsch 1834). He regarded them "wirkliche Prachtpflanzen und eine Zierde der Gewächshäuser" [truely splendid plants and an ornament for the conservatories], adding that they flower already since November [1833] and thus at a season when otherwise few other plants are in bloom in the green houses (Klotzsch 1834).

In short, a second scientific name in *Euphorbia* was available only a single year after the publication of Rafinesque's *Euphorbia poinsettii*. However, it was the later name formed by Klotzsch that has been almost universally accepted since then, a situation which makes a proposal for conservation advisable (see 11., below).

9. Graham

Robert Graham (1786–1845), first professor of botany at Edinburgh University, reported that Poinsett had sent living material of *Euphorbia pulcherrima* to Charleston in South Carolina in 1828 and "afterwards to Mr. [Robert] Buist of Philadelphia" (Graham 1836a, b). From there it had been passed to the Royal Botanic Garden in Edinburgh in November 1834 and to several other establishments in England and Scotland (Graham 1836a, b). Struck by the beauty of this plant, Graham continues "Nothing can be more ornamental in the stove. The roselike whorls of bractae which terminate the branches, have been seen on the large plants cultivated at Philadelphia as much as twenty inches across and equal in colour to the finest tints of *Hibiscus Rosa-sinensis*." (Graham 1836a, b). Graham gives the name *Poinsettia pulcherrima* to the new introduction, adding "*E. pulcherrima* Willd. Herb.! *E. Poinsettia* Buist MSS" in synonymy, but not *E. pulcherrima* Klotzsch (Graham 1836a, b). Graham is the first to provide an illustration of the new plant, a coloured engraving prepared by Joseph Swan (–1872), dated "1.6.1836". Adding "*E. pulcherrima* Willd. Herb." in synonymy is slightly surprising, since Graham is not know to have consulted the Willdenow herbarium. However, it seems very probably that he was aware of Klotzsch's contribution to the Allgemeine Gartenzeitung, a journal cited by him a few months earlier (Graham 1835), though not in his papers on *P. pulcherrima* (Graham 1836a, b).

Starting from 1827, William Jackson Hooker (1785–1865), professor of botany at Glasgow University, was editor of Curtis's Botanical Magazine, where Graham had published his paper on *Poinsettia pulcherrima* (Graham 1836b). When he and George Arnott Walker Arnott (1799–1868), later professor of botany at Glasgow University, determined specimens collected in Mexico by George Tradescant Lay (1800–1845) and Alexander Collie (1793–1835) during Captain Frederick William Beechey's voyage, the name *P. pulcherrima* was used (Hooker & Arnott 1838). The respective specimen an-

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notated with "Mexico, Beechey" only is kept in the herbarium of the Royal Botanic Gardens Kew.

In modern terminology Curtis's Botanical Magazine would be called a journal with a high impact factor (IF), which resulted in *Euphorbia pulcherrima* becoming quickly known among the initiated. One of them was Antonio Bertoloni (1775–1869), professor of botany at Bologna University, who had received living specimens of this species from Joachim Velasquez collected in what is now Guatemala (Bertoloni 1840). These were subsequently grown in the Botanic Garden of Bologna University and used as basis for the description of *E. erythrophylla,* an illegitimate name, since the older names "*E. pulcherrima* Willd. Herb. *Poinsettia pulcherrima* Grah. in Bot. mag. New. Ser. v. 10. tab. 3493" are given in synonymy (Bertolini 1840). The specimen given by Velasquez to Bertolini is still extant (Christofolini & al. 1987), though not a specimen cultivated in the Bologna Botanic Garden.

10. Enigmas

For unknown reasons the specimen B-W 9259 is missing, a fact already recording by P. Hiepko in a manuscript note dated 1968 when the microfiche edition of the Willdenow herbarium was prepared. The blue cover with the number 9259 in Diederich Friedich Carl von Schlechtendal's hand survives empty bearing a label inscribed *"Euphorbia pulcherrima"* in an unknown hand. The possibility cannot be excluded that the missing specimen almost certainly collected by Humboldt and Bonpland in Mexico has been erroneously placed in the general herbarium prior to 1943 and might have been lost during the Second World War.

11. Nomenclature and typification

Since no material of the *Euphorbia pulcherima* Klotzsch cultivated in the Royal Botanic Garden in Schöneberg near Berlin has been preserved as a herbarium specimen, it is necessary to select a type from the material studied by Klotzsch. B-W 9257 (Fig. 2B) is formally proposed as lectotype here, the choice being based on the annotation (1) "*E. pulcherrima* Herb. Willd. Klotzsch in Ottos Gärtnerzeitung determ. Klotzsch" written in Klotzsch's hand and (2) Willdenow's note cited above in full.

No herbarium material of *Euphorbia poinsettii* Raf. cultivated in the botanical garden of Bartram in Philadelphia, USA, seems to exist. For the time being it is regarded as helpful to select a neotype and t. 3493 of Curtis's Botanical Magazine seems a reasonable choice, since Graham (1836a, b) explicitly stated "it [*Poinsettia pulcherrima*] was ... discovered by Mr Poinsette in Mexico, and sent by him ... afterwards to Mr Buist of Philadelphia. ... From Mr Buist it was brought by Mr James M'Nab, to the Botanic Garden Edinburgh ... in November 1834. ... It subsequently flowered ... again with us this month" [February 1836]. Everything indicates that this very introduction forms the basis of the coloured engraving cited above prepared by a botanical illustrator known to have been based in Scotland (Desmond 1994).

Euphorbia pulcherrima Willd. ex Klotzsch in Allg. Gartenzeitung 2: 27. 1834, **nom. cons. prop.** ≡ *Poinsettia pulcherrima* (Willd. ex Klotzsch.) Graham in Edinburgh New Philos. J. 20: 412. 1836. – Lectotype (designated here): Mexico, [s.l.], [1803–04], *Humboldt & Bonpland* (B-W 9257) (Fig. 2).

= *Pleuradena coccinea* Raf., Atlantic J.: 182. 1833 ≡ *Euphorbia coccinea* Raf., Atlantic J.: 182. 1833, non Roth 1821 ≡ *Euphorbia poinsettii* [*"poinseti"*] Raf., Atlantic J.: 182. 1833. – Neotype (designated here): [icon] Curtis Bot. Mag, t. 3493. 1836.

= *Euphorbia erythrophylla* ["*erithrophylla"*] Bertol. in Novi Comment. Acad. Sci. Inst. Bononiensis 4: 422. 1840, nom. illeg. – Lectotype (designated here): Guatemala, 1837, *Valleyquaz* (BOLO, herb. Bertolini; IDC microfiche 45, lower row, first specimen from the right!).

= *Euphorbia fastuosa* Sessé & Moç. in Naturaleza (Mexico City), ser. 2, 1, app. [Pl. Nov. Hisp.]: 81. 1888. – Lectotype (designated by Nelson 1997: 395): Sessé & Moçino herb. no. 1776 (MA 602274; isolectotypes: Sessé & Moçino herb. no. 1775, MA 602275, MA 602276; BM).

Notes. — (1) The name *Poinsettia pulcherrima* Graham is to be regarded as a homotypic synonym of *Euphorbia pulcherrima* Willd. ex Klotsch because of its explicit reference to "*Euphorbia pulcherrima,* Herb. Willdenow" in Klotzsch's protologue.

(2) No material cultivated in the Bologna Botanic Garden and preserved as herbarium specimen seems to survive at BOLO but only material given to Bertoloni by Valleyquaz [Velasquez] from present day Guatemala which bears annotations in the former's hand.

12. Epilogue

No attempt is made to trace the transfer of the poinsettia after 1840 into other gardens, its subsequent distribution and globalisation or to deal with the commercial aspects of a plant which is sold in many millions each year. Within a few decades *Euphorbia pulcherrima* reached distant countries, e.g. the island of Upolu in the Pacific in 1905 at the latest (Rechinger 1910). However, all this goes back to the endeavours of the early intrepid travellers and collectors in Mexico who laid the foundations of our knowledge of the flora of Mesoamerica and the opening up of this country after it had gained independence.

Note

Unless otherwise indicated biographical information is taken from reference works, notably Stafleu & Cowan

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(1976, 1979, 1981, 1983, 1985, 1986, 1988), Stafleu & Mennega (1992, 1993, 1995, 1997, 1998, 2000), Dorr & Nicolson (2008–09) and Desmond (1994).

A formal proposal to conserve the name *Euphorbia pulcherrima* Willd. ex Klotzsch (1834) against *E. poisettii* Raf. (1833) is in preparation by the author.

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